

No. 55.

TRANSCRIPT OF RECORD.

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UNITED STATES CIRCUIT COURT OF APPEALS,  
NINTH CIRCUIT.

OCTOBER TERM, 1891.

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CONSOLIDATED PIEDMONT CABLE COMPANY,

APPELLANT,

vs.

PACIFIC CABLE RAILWAY COMPANY,

APPELLEE.

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APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES,  
NORTHERN DISTRICT OF CALIFORNIA.

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Filed May 31, 1892.

FILED  
JUL 1 - 1892



UNITED STATES CIRCUIT COURT OF APPEALS  
FOR THE NINTH CIRCUIT.

CONSOLIDATED PIEDMONT CABLE COMPANY,  
APPELLANT,

*vs.*

PACIFIC CABLE RAILWAY COMPANY,  
APPELLEE.

TRANSCRIPT ON APPEAL.

(FROM U. S. CIRCUIT COURT, NORTHERN DISTRICT OF CALIFORNIA.)

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1 *Bill of Complaint.*

In the Circuit Court of the United States, Ninth Judicial Circuit, in and for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY, Complainant,	} In Equity.
vs.	
CONSOLIDATED PIEDMONT CABLE COMPANY, Defendant.	

To the Honorable, the Judges of the Circuit Court of the United States, for the Northern District of California:

The Pacific Cable Railway Company, a corporation organized and existing under and by virtue of the laws of the State of California, having its principal place of business in the City and County of San Francisco, in said State, a citizen of the State of California, brings this its bill against the Consolidated Piedmont Cable Company, a corporation organized and existing under and by virtue of the laws of the State of California, having its principal place of business in the City of Oakland, County of Alameda, in said State, a citizen of said State.

And thereupon your orator complains and says, on information and belief, that Henry Root, of the City and County of San Francisco, State of California, before and at the time of his application for the hereinafter mentioned letters patent, was a citizen of the United States, and was the true, original and first inventor of a certain new and useful apparatus, described in the specification of the letters patent hereinafter mentioned, and named therein "*Tension Apparatus for Cable Railways,*" and which was not known or used in

2 this country and not patented or described in any printed publication in this or in any foreign country before his invention thereof, and was not in public use or on sale for more than two years prior to his application for letters patent of the United States therefor.

And your orator further shows that upon due application therefor, letters patent for said invention, Number 244,147 and bearing date the 12th day of July, 1881, were, in due form of law issued and delivered to said Henry Root in the name of the United States of America, and under the seal of the patent office of the United States, and were signed by the Secretary of the Interior of the United States, and countersigned by the Commissioner of Patents, and that the said letters patent did grant to the said Henry Root, his heirs, administrators and assigns, for the term of seventeen years from the date thereof, the exclusive right to make, use and vend the said invention and apparatus throughout the United States and Territories thereof, and your orator makes profert of said letters patent.

And your orator further shows that before the commencement of this action and before the commission of the acts of the defendant, hereinafter complained of as an infringement, your orator became and still is the sole and exclusive owner and holder of and became and still is vested with, all the right, title and interest in and to said letters patent, and the inventions therein contained, for, to and in and within and throughout the whole of the United States and Territories thereof, which lie west of the one hundred and sixth (106th) degrees of longitude west from Greenwich, England, as by the several assignments, duly executed and delivered and recorded in the

United States Patent Office, or duly authenticated  
3 copies thereof, ready in Court to be produced, will fully and at large appear.

And your orator further shows that your orator's exclusive rights and privileges, as secured by said letters patent have been generally acquiesced in, and that your orator and its predecessors in interest have granted licenses under said letters patent and have extensively applied to practical use the inventions therein described.

And your orator further shows, as it is informed and believes, the said defendant corporation herein, after your orator acquired title as aforesaid, to said letters patent, and the inventions therein contained and before and up to the time of the commencement of this action, and during and within the term of seventeen years mentioned in said letters patent, and within those parts of the United States covered by the assignment of said letters patent to your orator, to wit, within the State of California, in the Northern District thereof, unlawfully, wrongfully and injuriously, and with intent to derive profits from the making and using said apparatus, and to deprive your orator of the royalties which it might and otherwise would have derived from the sale of rights to make and use specimens thereof, and without the license of your orator and against its will, did make and did use, and did cause to be made and did cause to be used said patented apparatus, or an apparatus substantially the same in construction and operation as in said letters patent mentioned and described, in infringement of the said exclusive rights secured to your orator as aforesaid; and your orator avers that said defendant has derived profits therefrom, but to what amount your orator is  
4 ignorant and cannot set forth, and that your orator has been deprived of large royalties by reason of the aforesaid infringement of the defendant and has thus incurred large damages thereby.

And your orator further shows that it fears and has reason to fear that unless the defendant is restrained by a writ of injunc-

tion issuing out of this Court it will continue to use said patented apparatus and will make and use others of said patented apparatus, and will thereby cause irreparable injury to your orator's aforesaid exclusive rights.

And so it is, may it please your Honors that the said defendant corporation herein, as your orator is informed and believes, without the license of your orator, against its will and in violation of its rights has constructed and used and intends still to continue to construct and use said patented apparatus within the Northern District of California, all of which is in violation of the said letters patent.

And your orator prays that the defendant corporation herein by a decree of this Honorable Court may be compelled to account for and pay over to your orator all the profits which the defendant has derived or shall have derived from any making and using or from any using of any specimen of the apparatus covered and secured by said letters patent; and also that the said defendant be decreed to pay to your orator all the damages which your orator has incurred or shall have incurred on account of the defendant's infringement of said letters patent. And to the end that the defendant corporation may be restrained from any further violation of the rights of your orator, as above set forth, your orator prays that your Honors  
5 may grant a writ of injunction issuing out of and under the seal of this Honorable Court, directed to the said defendant herein, and strictly enjoining and restraining it, its officers, agents and employes, from any further construction and from any further use and from any further sale, in any manner of said patented apparatus, or any part or parts thereof, in violation of the rights of your orator, and that all specimens of said apparatus or any part or parts thereof, in the possession or use or under the control of said defendant, may be destroyed or delivered up to your orator for the purpose. And also that your Honors may upon the entering of a decree for an infringement as above prayed for, proceed to assess or cause to be assessed under your directions, in addition to the profits to be accounted for as aforesaid, the damages your orator has sustained by reason of such infringement.

And your orator prays for a provisional or preliminary injunction, and for such other relief as the equity of the case may require and to your Honors may seem meet, together with the costs of this suit.

To the end, therefore, that the defendant corporation herein may, if it can, show reason why your orator should not have the relief herein prayed for, and that it may to the best and utmost of its knowledge, remembrance, information and belief full, true, direct and perfect answer make, but not upon oath



(answer upon oath being hereby expressly waived), to each of the allegations of this bill, as though specially interrogated relative thereto. May it please your Honors to grant unto your orator, not only a writ or writs of injunction conformable to the prayer of this bill, but also a writ of subpœna, issuing out of and under the seal of this Honorable Court, directed to the Consolidated Piedmont Cable Company, the defendant herein, commanding it to appear and answer unto this bill of complaint, and to perform and to abide by such order or decree as to the Court shall seem meet and be required by the principles of equity and good conscience.

And your orator will ever pray.

In witness whereof the said complainant herein, the Pacific Cable Railway Company, has hereunto affixed its corporate seal and caused the same to be attested by J. L. Willcutt, its Secretary.

(Corporate Seal of P. C. R. Co.) J. L. WILLCUTT,  
*Secretary.*

WM. F. BOOTH,  
*Solicitor for Complainant.*

WILLIAM F. BOOTH,  
*Of Counsel for Complainant.*

STATE OF CALIFORNIA, {  
*City and County of San Francisco,* } ss.

Andrew S. Hallidie, being duly sworn, does depose and say, that he is the President of the Pacific Cable Railway Company, the complainant in the foregoing bill, and that by means of his said office, he has acquired and possesses particular knowledge of the matters stated in said bill; that he has read the foregoing bill and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he verily believes it to be true. And he further doth depose and say, that he verily believes the said Henry Root, in the bill of complaint named, to be the true, original and first inventor of the Tension Apparatus for cable railways, which is described in the said letters patent granted to him and mentioned in the foregoing bill of complaint. And he doth further depose and say that he verily believes the title of complainant as set forth in the said bill, is true.

ANDREW S. HALLIDIE.

Subscribed and sworn to before me this 30th day of September, 1890.

[SEAL.]

LINCOLN SONNTAG,  
*Notary Public.*

(Endorsed:) Filed October 2d, 1890. L. S. B. Sawyer,  
Clerk.



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*Subpoena ad Respondendum.*

UNITED STATES OF AMERICA:

Circuit Court of the United States, Ninth Judicial Circuit,  
Northern District of California. In Equity.The President of the United States of America. Greeting: To  
Consolidated Piedmont Cable Company, a corporation or-  
ganized and existing under and by virtue of the laws of the  
State of California, and a citizen of said State:You are hereby commanded, That you be and appear in said  
Circuit Court of the United States aforesaid, at the court room  
in San Francisco, on the third day of November, A. D. 1890,  
to answer a Bill of Complaint, exhibited against you in said Court  
by Pacific Cable Railway Company, a corporation, which  
is a citizen of the State of California, and to do and receive what  
the said Court shall have considered in that behalf. And this  
you are not to omit, under the penalty of five thousand dollars.Witness, the Honorable Melville W. Fuller, Chief Justice of  
the Supreme Court of the United States, this 2nd day of Oc-  
tober, in the year of our Lord one thousand eight hundred and  
ninety and of our Independence the 115th.

[SEAL.]

L. S. B. SAWYER, *Clerk.*9 *Memorandum Pursuant to Rule 12, Supreme Court, U. S.*You are hereby required to enter your appearance in the  
above suit, on or before the first Monday of November next, at  
the Clerk's Office of said Court, pursuant to said bill; otherwise  
the said bill will be taken *pro confesso.*L. S. B. SAWYER, *Clerk.*

(Endorsed.)

UNITED STATES MARSHAL'S OFFICE,  
NORTHERN DISTRICT OF CALIFORNIA.I hereby certify, that I received the within writ on the 2nd day  
of October, 1890, and personally served the same on the 8th day  
of October, 1890, on the Consolidated Piedmont Cable Company,  
by delivering to and leaving with Montgomery Howe, President  
of said Consolidated Piedmont Cable Company, said defendant  
named therein, personally at the County of Alameda, in said  
District, an attested copy thereof.W. G. LONG, *U. S. Marshal,*By A. A. WOOD, *Deputy.*

San Francisco, Oct. 8th, 1890.

Filed Oct. 8, 1890.

L. S. B. SAWYER, *Clerk,*By F. D. MONCKTON, *Deputy Clerk.*

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*Answer.*

In the Circuit Court of the United States, Ninth Circuit, in and  
for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY,	}
Complainant,	
<i>vs.</i>	}
CONSOLIDATED PIEDMONT CABLE COMPANY,	
Defendant.	

The answer of the Consolidated Piedmont Cable Company, the defendant, to the bill of complaint of the complainant herein filed, this defendant now and at all times hereafter saving and reserving unto itself all benefit and advantage of exception which can or may be had or taken to the many errors, uncertainties and other imperfections in the said complainant's said bill of complaint contained, for answer thereto, or unto so much and such parts thereof, as this defendant is advised, is or are material or necessary for it to make answer unto, this defendant for answering, saith:

This defendant admits that the letters patent described in said bill of complaint were granted to Henry Root, and were afterwards assigned and conveyed to the complainant as alleged in said bill, in so far as an invalid patent could be assigned.

This defendant denies that the said Henry Root, before or at the time of his application for said letters patent, or at any other time, or at all, was the true, or original, or first, or  
11 any inventor of the certain alleged new or useful apparatus, or improvement described in the specification of the said letters patent, and named therein "Tension Apparatus for Cable Railways," but this defendant avers that the same was well known to persons skilled in the art to which the said apparatus appertains, for more than two years prior to the alleged invention thereof by the said Henry Root.

This defendant further answering avers that in view of the prior state of the art pertaining to "Tension Apparatus for Cable Railways," and the manner of its construction, there was and is no patentable invention in the said alleged patented invention described in the letters patent of Henry Root sued on herein, but that the same or substantially the same thing was well known in the art, and that if in the said alleged improvement, there is anything new or different from that known or discovered in said prior art, it is not the result of patentable invention, but is wholly the result of the exercise of the ordinary skill of the ordinary mechanic, skilled in the art aforesaid, and is of no practical utility. This defendant avers that each of the alleged combinations claimed in said letters patent

is not a legal, actual or patentable combination, but that the same is a mere aggregation of mechanical features, and that there is no joint action between the same.

This defendant denies that the said alleged exclusive rights and privileges alleged to be secured by said letters patent have been generally or at all acquiesced in, or that the complainant or its predecessors in interest have granted licenses, or any license under said letters patent, or that they or either of them have extensively, or at all applied to practical use the said inventions therein described, or any part thereof.

12 And further answering this defendant denies that either during or within the seventeen years mentioned in said letters patent, or at any other time or at all either within the Northern District of California, or any where else, it either unlawfully or wrongfully, or injuriously, or with the intent to derive profits from the making, or using of said apparatus, or to deprive complainant of the royalties which it might or would have derived from the sale of rights to either make or use specimens thereof, or otherwise, did either make, or did use, or that it did either cause to be made, or that it did cause to be used, sundry specimens, or any specimen of said patented apparatus, or of an apparatus substantially or otherwise the same in construction, or operation as that mentioned, or described in said letters patent, denies that it infringed, or now infringes upon the exclusive or any rights of the complainant, and defendant denies that it intends to, or that it will either make, or use, or cause to be made or used the said patented apparatus, or any specimen of the apparatus described in said letters patent, whether it is restrained from so doing or not. It denies that it has ever made, or used, or sold, or that it has intended to continue to either make, or construct, or use, or sell at any time, or any place, the said patented apparatus, or any specimen thereof, and denies that it has infringed upon said letters patent in any way or form whatever, and denies that it ever intended to infringe upon said letters patent, and denies that the complainant either fears, or has any reason to fear that the defendant will continue to make, or that it will use said patented improvement, or apparatus, or any specimen thereof, whether it is restrained by an injunction or not.

13 Defendant denies that the complainant by reason of said alleged infringement has been deprived of large royalties or of any royalties, or that it has incurred large damages, or any damages, or that defendant has made large profits, or any profits whatever, by reason of said alleged infringement, and denies that the complainant has incurred or sustained, or will incur or sustain large damages, or any damages whatever

on account of any construction, or of any use of the said alleged patented apparatus, or invention, or of any specimen thereof by this defendant.

And further answering, the said defendant denies that the said complainant is entitled to the relief or any part thereof in the said bill of complaint demanded. And this defendant prays the same advantage of its aforesaid answer, as if it had pleaded or demurred to the said bill of complaint, and this defendant prays leave to be dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

WHEATON, KALLOCH & KIERCE,  
*Solicitors for Defendant.*

WHEATON, KALLOCH & KIERCE,  
*Of counsel for Defendant.*

(Endorsed:) Service of the within answer and receipt of a copy thereof admitted this 11th day of December, 1890. Wm. F. Booth, Solicitor for Complainant. Filed 11th day of Decr., A. D. 1890. L. S. B. Sawyer, Clerk.

14 *Replication to Answer.*

Circuit Court of the United States, in and for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY,	Complainant,	} No. 10987. In Equity. Replication.
<i>vs.</i>		
CONSOLIDATED PIEDMONT CABLE COMPANY,	Defendant.	

This repliant, saving and reserving unto itself all and all manner of advantage of exception to the manifold insufficiencies of the said answer, for replication thereunto saith, that it will aver and prove its said bill to be true, certain, and sufficient in the law to be answered unto; and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by this repliant; without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true; all which matters and things this repliant is, and will be, ready to aver and prove, as this Honorable Court shall direct; and humbly prays, as in and by its said bill it hath already prayed.

WM. F. BOOTH,  
*Solicitor for the Complainant.*

Service of the above replication acknowledged this fifth day of January, 1891.

WHEATON, KALLOCH & KIERCE,  
*Sols. for Defendant.*

(Endorsed:) Filed Jan. 5, 1891. L. S. B. Sawyer, Clerk,  
by F. D. Monckton, Deputy Clerk.

15 *Enrollment.*

In the Circuit Court of the United States, Ninth Circuit, North-  
ern District of California.

PACIFIC CABLE RAILWAY COMPANY,	Complainant,	} No. 10,987.
<i>vs.</i>		
CONSOLIDATED PIEDMONT CABLE COMPANY,	Respondent.	

The complainant filed its bill of complaint herein on the 2d day of October, 1890, which is hereto annexed.

A subpoena to appear and answer in said cause was thereupon issued, returnable on the 3rd day of November, A. D. 1890, which is hereto annexed.

The respondent appeared herein on the 3rd day of November, 1890, by M. A. Wheaton and F. J. Kierce, Esqs., its solicitors.

On the 11th day of December, 1890, an answer was filed herein, which is hereto annexed.

On the 5th day of January, 1891, a replication to said answer was filed herein, which is hereto annexed.

Thereafter an interlocutory decree was duly signed, filed and entered, in the words and figures following, to wit:

16 *Interlocutory Decree.*

In the Circuit Court of the United States. Ninth Judicial  
Circuit, in and for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY, Complainant,	} No. 10987. In Equity.	
<i>vs.</i>		
CONSOLIDATED PIEDMONT CABLE COMPANY,		Defendant.

At a stated term, to wit: the February Term of 1892, of the Circuit Court of the United States, in and for the Ninth Judicial Circuit, Northern District of California, held at the courtroom thereof in the City and County of San Francisco, State of California, on Saturday, the 19th day of March, 1892:

Present—Hon. Thomas P. Hawley, U. S. District Judge, District of Nevada, assigned to hold and holding the United States Circuit Court for the Northern District of California.



This cause having heretofore come on to be heard upon the bill of complaint of complainant, and the answer of the defendant thereto, and the replication of complainant and proofs, oral and documentary taken and filed in said Court, and being now of record, and having been argued by Wm. F. Booth, Esq., solicitor for complainant, and M. A. Wheaton, Esq., of Messrs. Wheaton, Kalloch & Kierce, solicitors for defendant, and submitted to the Court for consideration and decision; and the Court, having duly considered the same, and being now fully advised in the premises: It is ordered, adjudged and decreed, and the Court doth hereby adjudge and decree as follows, to wit:

That those certain letters patent of the United States, 17 granted and issued on the 12th day of July, 1881, to Henry Root, numbered 244,147, for tension apparatus for cable railways (being the said letter patent set forth in the bill of complaint), as to claims one and two thereof being all the claims of said patent, are good and valid in law; that said Henry Root was the true, original and first inventor of the invention described, claimed and patented in and by the said claims of said letters patent; that the Pacific Cable Railway Company, the complainant herein, is the sole and exclusive owner and holder of said letters patent for, to and in the whole of the United States and Territories thereof, which lies west of the 106 degree of longitude west from Greenwich, England; that the defendant herein, the Consolidated Piedmont Cable Company, a corporation organized and existing under and by virtue of the laws of the State of California, without the license or consent of complainant, at the City of Oakland and its suburbs, in Alameda County, State of California, since the complainant became the owner and holder of said letters patent, has infringed upon each and both of said claims of said letters patent and the exclusive rights and privileges of said complainant under the same; that is to say, by making and using tension apparatuses for a cable railway containing the invention and improvement described in and by the said claims, each and both of them, of said letters patent, as charged in the bill of complaint.

It is further ordered, adjudged and decreed that the complainant herein does have and recover of and from said defendant, the Consolidated Piedmont Cable Company, a corporation as aforesaid, the gains, profits and advantages which it has made or received, or which have arisen or accrued to it from or by reason of the infringement aforesaid; and also, any and all damages which the complainant has suffered or sustained from or by reason of said infringement, together 18 with costs of suit.

And it is further ordered, adjudged and decreed that the ease

be referred to S. C. Houghton, Esq., the standing Master in Chancery of this Court, to ascertain, take, state and report to this Court an account of the number of the tension apparatus for cable railways made and used by the said defendant containing the invention claimed and patented in and by said claims, each and both of them, of said letters patent, and also the gains, profits and advantages which the said defendant has made or received, or which have arisen or accrued to it from and by infringing upon said claims, each and both of them, of said letters patent, and also the amount of damages which the complainant has suffered and sustained from and by reason of said infringement.

It is further ordered, adjudged and decreed that the complainant have the right to cause an oral examination, under oath, of the officers, directors, agents, servants and employes of the said defendant corporation and each of them, and any other witnesses necessary to take said accounting, and also the right to inspect and to have produced before the Master all books, vouchers, contracts, papers and other documents belonging to or in the possession of or under the control of said defendant, showing, or tending to show, or containing any evidence bearing on any matters or things material to the accounting.

It is further ordered, adjudged and decreed that the said defendant corporation, its agents, servants, workmen, employes, officers and directors be and they are hereby forever perpetually enjoined and restrained from making, using or selling, or offering for sale, any tension apparatuses for cable railways containing the invention or improvement covered and 19 and patented in and by either or both claims of said letters patent and from infringing said claims in any manner whatever.

(Signed,)

HAWLEY,  
*Judge.*

(Endorsed:) Filed and entered April 13, 1892. L. S. B. Sawyer, Clerk.

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*Certificate to Enrollment.*

Whereupon said pleadings, subpoena and interlocutory decree are hereto annexed, said decree being duly signed, filed and enrolled, pursuant to the practice of said Circuit Court.

Attest, etc.

[SEAL.]

L. S. B. SAWYER, *Clerk,*  
By W. B. BEAIZLEY, *Deputy Clerk.*

(Endorsed:) Enrolled Papers filed April 13, 1892. L. S. B. Sawyer, Clerk, by W. B. Beazley, Deputy Clerk.



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*Caption to Depositions.*

In the Circuit Court of the United States for the Ninth Judicial Circuit, in and for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY,	Complainant,	} In Equity. No. 10,987.
<i>vs.</i>		
CONSOLIDATED PIEDMONT CABLE COMPANY,	Respondent.	}

Be it remembered, that on the twelfth day of February, A. D. 1891, and on the several days thereafter to which the examination was regularly adjourned, as hereinafter set forth, at my office, room 57, in the United States Appraisers' Building, on the northeast corner of Washington and Sansome streets, in the City and County of San Francisco, State of California, before me, S. C. Houghton, Examiner in Chancery of the Circuit Court of the United States for the Ninth Circuit and Northern District of California, personally appeared the several witnesses whose names are hereinafter set forth, who were produced and examined on behalf of the respective parties to the above entitled cause.

W. F. Booth, Esq., appeared as counsel on behalf of complainant, and M. A. Wheaton, Esq., as counsel on behalf of Respondent.

Following is a record of the proceedings:

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*Admission of Exhibits.*

THURSDAY, February 12, 1891.

Present—Mr. Booth, of counsel for complainant; Mr. Wheaton, of counsel for respondent.

(Complainant introduces in evidence Patent Office copy of specifications and drawings of the United States Letters Patent No. 244,147, granted July 12, 1881, to Henry Root, for tension apparatus for cable railways. Marked "Complainant's Exhibit A.")

(It is agreed by both complainant and respondent that said Patent Office copy may be received in evidence and be of the same force and effect as the original letters patent.)

(Complainant also introduces in evidence model of the inventions described and claimed in the letters patent "Exhibit A." Marked "Complainant's Exhibit B.")

(Complainant also introduces in evidence model of tension apparatus made and used by the respondent. Marked "Complainant's Exhibit C.")

MR. BOOTH: In this case we claim that both claims of the patent sued on are infringed by respondent.

(It is admitted as a fact, by both complainant and respondent, that the title to the letters patent sued on in this case is in complainant, as alleged in the bill.)

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*Deposition of Wm. H. Smyth.*

Examination-in-chief of WILLIAM H. SMYTH on behalf of complainant.

By Mr. BOOTH:

Q. 1. State your name, age, place of residence and occupation?

A. My name is William H. Smyth, my age is thirty-five years, I reside in San Francisco, and am by occupation a mechanical engineer.

Q. 2. Mr. Smyth, have you read and do you understand the patent in suit in this case?

A. I have and do.

Q. 3. Look at the model of tension apparatus "Exhibit B," and state whether or not it is made in accordance with that patent?

A. It is.

Q. 4. And are the parts similarly lettered?

A. Yes, they are.

Q. 5. Will you please explain from that model the construction and the mode of operation of the tension device of the patent, which that model represents?

A. The model as a whole represents a tension and compensating device in cable roads to take up the slack of the cable and keep tension on it, and it consists of a carriage "C," having a grooved wheel "A" journaled in it, and around which the cable "B" runs. Attached to one end of this carriage is a chain "F," to which a weight "H" is attached, the chain passing over a pulley "G" upon another carriage. Both of said carriages move on a track which is supplied with ratchet teeth. The chain-wheel carriage is supplied with dogs which engage with the ratchet teeth, and also stops to limit the motion of the carriage "C." Upon the axle of the wheel "A" is secured a gypsy "O," and one end of the chain-wheel bearing carriage is connected with a block and tackle, the tackle being secured at one end to a fixed point, the free end of the rope being wound loosely upon the gypsy. The operation of the device is as follows: the weight which is hung in a long shallow pit keeps a tension upon the rope, and takes up a portion of the slack which may arise during wear. When the weight has fallen to the depth of the pit the chain-wheel carriage is pulled further back by means of the block and

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tackle and the gypsy on the axle of the wheel "A," thereby raising the weight, and the action of taking in the slack and the tension goes on as before, and also during the time that the carriage is being drawn back.

Q. 6. Mr. Smyth, did you investigate the tension apparatus which is used by the defendant in this case in Oakland, California?

A. I did.

Q. 7. Can you say whether the model "Exhibit C" correctly represents that device used by the defendant?

A. It does.

Q. 8. How does its operation compare with the operation of the complainant's apparatus as represented by the model "Exhibit B?"

A. Its action is precisely the same.

Q. 9. How do they compare in construction?

A. They are the same except for slight modifications in details.

Q. 10. What are those modifications?

A. The chain-wheel carriage in the complainant's apparatus not only slides upon the tracks "J," but also supports the carriage "C." In the defendant's construction both of the carriages referred to rest upon the track "J." The action in both cases is precisely the same.

## 25 Cross-examination of WILLIAM H. SMYTH.

By Mr. WHEATON.

X.-Q. 1. The specification of the patent says: "The rails or timbers E are united to a framework I, which rests upon long timbers J." Will you point out in the model "Exhibit B" which are the timbers "E," and what is the framework "I" mentioned?

A. They are the timbers marked respectively "E" and "I" on the model "Exhibit B."

X.-Q. 2. The timbers "E" are the timbers upon which the wheels of the car "C" run, are they not?

A. Yes, sir.

X.-Q. 3. Are they described in the patent in these words: "These wheels are flanged, and run upon rails or timbers E, which are preferably set in line with the cable?"

A. Such language as that is in the patent.

X.-Q. 4. Now, the timbers "J" are the main foundation timbers that run the whole length of the machine, are they not?

A. Yes.

X.-Q. 5. Now, what timbers are there between the rails "E" and the timbers "J?"

A. The frame "I." —

X.-Q. 6. The patent says: "The rails or timbers E are united to a framework I, which rests upon the timbers J." Is not the framework "I" all of the timbers above the cross timbers and longitudinal timbers that come between the rails "E" and the lower timbers "J?"

A. Yes, the timbers "I" are the support of the chain-wheel?

X.-Q. 7. Are you not mistaken about that?

26 A. I don't think so.

X.-Q. 8. The patent does not say "The timbers I," it says "The framework I."

A. The framework "I" is the foundation on which the chain-wheel rests and is carried.

X.-Q. 9. Now, explain fully what you understand by "the framework I?"

A. Well, I should say it was the whole of the timber marked "I" and the frame or timbers upon which the chainwheel is supported.

X.-Q. 10. That is, the cross timbers?

A. Yes. They have no other designating letter.

X.-Q. 11. What do you understand to be the distinction between the rails "E" and the secondary tramway "J" mentioned in the patent?

A. The rails "E" are merely stops to limit the motion of the carriage "C." The rails "J" are the rails upon which the whole thing runs.

X.-Q. 12. Now, how many sets of tracks on which the cars run or slide do you find in the defendant's device?

A. One set. There are four tracks, but answering your question as I understand it, there is only one set of tracks. They are continuous so that they form tracks both for the carriage "C" and the chain-wheel carriage.

X.-Q. 13. There is but one set of tracks in the defendant's machine, is there?

A. With that explanation, yes.

X.-Q. 14. You do not find both the tracks "E," and also the secondary tracks "J" in the defendant's machine, do you?

A. I find them combined in one. I find that both carriages work on the same track.

27 X.-Q. 15. In the patented apparatus the rails "E," on which the car "C" moves are placed directly over the secondary rails "J" mentioned in the patent, are they not?

A. Yes, sir.

X.-Q. 16. Whereabouts, in relation to cable roads, are these devices usually placed?

A. Usually somewhere in the neighborhood of the engine house, close to the winding-drums.

X.-Q. 17. By having the car rails "E" immediately over the secondary rails "J" it is possible to make the apparatus much shorter in length, is it not, than where the same tracks are used for both cars?

A. Not at all.

X.-Q. 18. Then what was the good of putting the car "C" up on the rails "E," instead of letting it run upon the main track "J"?

A. I can't tell you, only what the specification says about it.

X.-Q. 19. Do you see any advantage in doing that?

A. The part "E" performs two functions I notice, in this case, one of supporting the car "C," and also acting as a stop or limit to the motion of the car "C".

X.-Q. 20. Well, do you see any advantage whatever of the rails "E" in the patented apparatus; if so, what is such advantage?

A. I say I know of no other advantage except what is spoken of in the patent.

(Signed) WILLIAM H. SMYTH.

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*Deposition of Arthur F. L. Bell.*

THURSDAY, September 17th, 1891.

Present: Mr. Booth, of counsel for complainant; Mr. Wheaton of counsel for respondent.

Examination-in-chief of ARTHUR F. L. BELL, on behalf of respondent.

By Mr. WHEATON:

Q. 1. State your name, age, place of residence, and occupation?

A. My name is Arthur F. L. Bell; my age twenty-nine years; I reside in San Francisco, and I am by occupation Superintendent of the San Francisco Tool Company.

Q. 2. What business relations, if any, have you held with the Consolidated Piedmont Cable Company, the defendant in this suit?

A. The machinery for the road of that company was built under my supervision.

Q. 3. Have you examined, and do you understand the specification and drawings of United States Letters Patent No. 244,147, on which this suit is based?

A. I have and do.

Q. 4. Please look at the model "Exhibit B," and state how nearly that represents the apparatus described in said patent?



A. It is a true representation of the machine described in the patent, as far as I can see.

Q. 5. How nearly does the model "Exhibit C" represent the apparatus used by the defendant?

A. It is a correct model, as far as the size and dimensions of the model will permit.

29 Q. 6. Have you ever examined the specification and drawings of United States Letters Patent No. 193,939, granted August 7, 1877, to W. Eppelsheimer, for an improvement in tightening and stretching ropes, belts, etc.?

A. I have.

Q. 7. What is the nature of the apparatus described in that patent?

A. It is an arrangement for taking up the slack and giving the proper tension to the endless rope of a cable road, and has an attachment by which the tension-weight is allowed to move vertically without striking the bottom of its pit or the mechanism above it, no matter where the tension-carriage is located on its track.

(Respondent introduces in evidence Patent Office copy of specification and drawings of the United States Letters Patent last above referred to.

Marked "Respondent's Exhibit 1.")

Mr. BOOTH: Do you introduce that patent, Mr. Wheaton, simply for the purpose of showing the state of the art?

Mr. WHEATON: Yes, and not as an anticipation of the invention covered by the patent sued upon.

Q. 8. How does the general object and effect of the apparatus described in the patent "Exhibit 1" compare with the general object and effect of the apparatus shown by the models exhibits "B" and "C"?

A. The result obtained is exactly the same.

Q. 9. Please describe the devices and the working operation of the same, which you find described in the patent "Exhibit 1"?

30 A. I find a carriage, marked "C," supported by four wheels "D" running on tracks, the carriage supporting a sheave "A," upon which the cable "B" travels. At one end of the carriage is an attachment by means of which the tension-rope "I," at the end of which is the counter-weight "J," can be shortened or lengthened at the will of the operator, automatically, if so desired, so that no matter where the main carriage is located upon its tracks the counter-weight "J" is always in suspension.

Q. 10. What is the co-operative action between the main cable of a cable road and this counter-weight which you mentioned?

A. To keep the proper tension on the main cable.

Q. 11. Is it necessary that the weight should be always held in suspension in order to produce the necessary effect of keeping a proper tension upon the main cable?

A. It is not absolutely necessary, but it is desirable that the weight be in suspension, although if too great a strain should come on the cable the counter-weight may be drawn upward so that it is pressing against the mechanism above it, or that the carriage is moved to its limit, and is stopped from moving further by means of bumpers. If, however, the counter-weight "J" moves so far downward as to rest on the bottom of the pit it is not exerting any weight on the tension carriage, and therefore might allow the main cable to slip on the winding mechanism in the engine room, on account of its not having the proper tension.

Q. 12. Is it true that in the apparatus described in the patent "Exhibit 1," and also in the apparatuses shown in both of the models Exhibits "B" and "C," that there is a car which carries a pulley or sheave around which the main cable of the road passes?

A. It is.

31 Q. 13. It is a fact in each instance that the tendency of the main cable is to draw that car in one direction?

A. It is.

Q. 14. Is it true that in each instance a counter-weight is attached to that car by means of a chain or rope which passes over another pulley turned edgewise vertically and which holds the weight in suspension?

A. It is.

Q. 15. Is it true that in each instance that weight held in suspension has a tendency to draw the car mentioned in the opposite direction from that in which the main cable tends to draw it?

A. It is.

Q. 16. Is it true that ordinarily in these cable roads the main cable stretches considerably by use?

A. It is.

Q. 17. Is it true that in each one of the three instances mentioned a provision is made for compensating for the slack of the cable occasioned by its stretching after it has stretched so far that the suspended weight may reach the bottom of the pit in which it is suspended?

A. It is.

Q. 18. Explain the means by which the compensation last mentioned is effected in the patent "Exhibit 1?"

A. Mounted on the main carriage "C," which supports the cable sheave, is a drum around which the tension-rope "I"



is wound and fastened, and the drum is so arranged that at any time it is found necessary the operator may turn the drum until the tension-rope "I" is of the proper length. The mechanism is so arranged with a ratchet-wheel and pawl that the drum cannot turn, but so that it holds the end of the tension-rope "I" permanently to the carriage "C." There is also an automatic arrangement by which the tension-rope "I" can be taken up automatically as is described in the specification of that patent.

32 Q. 19. When the tension-rope "I" is taken up by the winding of the drum, in what direction, if either, lengthwise with the track of the ear, does the drum pass, in that arrangement shown in the patent "Exhibit 1?" I do not refer to the revolving of the drum, but to the movement of the drum with whatever carries it along the length of the track?

A. It moves towards the counter-weight.

Q. 20. What carries that drum, in the mechanism shown in the patent "Exhibit 1?"

A. The carriage "C," which is mounted upon its four wheels "D."

Q. 21. Then as the cable is wound up on that drum, does it draw the whole entire car which carries the sheave "A" towards the counter-weight, so far as the slack of the main cable will permit it to go?

A. It does. And this arrangement does away with any cutting of the main cable or winding around other drums to shorten the main cable.

Q. 22. Referring now to the two claims of the patent sued upon, No. 244,147, please describe what the rails or timbers "E" are, and also what the secondary track "J" is, as found in the model "Exhibit B?"

A. The timber "E" is the part of a framework of a large truck, and forms or supports the rails upon which the tension-carriage "C" runs. These timbers "E" also form part of the truck upon which the chain-sheave is mounted, which supports the tension-chain and counter-weight.

The secondary tracks "J" are supports for guides for the truck which is formed by the framework "E" and "I," and is supposed to run the full length of the engine house, or that part of the building which is set aside for stretching  
33 the cable.

Q. 23. In the apparatus which the defendant uses, or has used, is there or has there been any secondary track?

A. There has not.

Q. 24. Has the defendant had or used any stretching or tension apparatus in which there was one track placed above another track?

A. No.

Q. 25. Has the defendant used any other apparatus which had any framework between any upper and lower, or original and secondary track corresponding in any way, shape or manner to the framework "I" mentioned in the claims of the patent sued on?

A. No.

Q. 26. Has the defendant used any tension apparatus in which there was any rails or timbers which corresponded to the rails or timbers "E" mentioned in the claims of the patent sued on?

A. No.

Cross-Examination of ARTHUR F. L. BELL.

By MR. BOOTH:

X.-Q. 1. The rails or timbers "E" mentioned in the patent sued on, and the framework "I," are so connected together as to form one framework, are they not?

A. They are.

X.-Q. 2. This framework composed of the rails or timbers "E" and the frame "I" constitute one single movable frame, do they not?

A. Yes, sir.

X.-Q. 3. And this single movable frame carries the pulley over which the chain which carries the weight passes, does it not?

A. It does.

34 X.-Q. 4. Now, looking at complainant's "Exhibit C," which is the model of the defendant's tension-apparatus, and observing the framework or car which is marked "I" on that model, and which carries the pulley over which the weight-suspending chain passes, tell the Court what different function, if any, it has in the mode of operation of defendant's tension-apparatus, from the function of the movable framework of complainant's apparatus, which consists of the connected timbers "E" and "I"?

Mr. WHEATON—That question is objected to as irrelevant, upon the ground that the function and mode of operation is not what is covered by the claims of the patent sued on; but, on the contrary, the claims cover a particular combination of devices by which that function or mode of operation is obtained; the only pertinent or relevant question being whether the defendant has used the combination of devices covered by either one of the claims of the patent sued on, or not?

A. The final results obtained are the same.

X.-Q. 5. (X.-Q. 4 repeated.)

A. The functions are not all the same. For instance, the mode of stopping the tension-carriage by means of buffers mounted on the different ends of the framework "E" and "I" of the model "Exhibit B" is altogether different from that shown in the model "Exhibit C."

X.-Q. 6. Are the functions otherwise the same?

A. Please explain more fully what you mean by "the functions."

X.-Q. 7. What does the movable framework "E I" of the complainant's apparatus do in carrying out the mode of operation?

A. It acts as a support for the rails upon which the  
35 tension-carriage "C" runs.

X.-Q. 8. Is that all it does in the operation?

A. It also acts as the supports for the tension-chain sheave.

X.-Q. 9. And is that all it does?

A. That is all I think of at the present time.

X.-Q. 10. Does it not, when pulled back, raise the weight?

A. It does.

X.-Q. 11. Why did you omit that?

A. My previous answer explains it. I did not think of that.

X.-Q. 12. Is not that its main object, namely, the raising of that weight when pulled back in the mode of operation?

A. No, that is only one of its objects.

X.-Q. 13. Is not that its main object, the question is?

A. No.

X.-Q. 14. Would it be of any utility at all, in the make up of this apparatus, if it did not raise that weight when pulled back?

A. It would.

X.-Q. 15. Of what utility?

A. To act as a support for the tension-carriage "C," and also to carry the buffers which are at either end.

X.-Q. 16. It raises that weight by reason of its capability of being moved back, does it not?

A. It does.

X.-Q. 17. Without that capability, and simply acting as a support for the cable-pulley car, and as furnishing the buffers forming the limits between which said car can move, could the mode of operation described in complainant's patent, and shown in that model "Exhibit B," be carried out at all?

A. No.

X.-Q. 18. Well then, does it not occur to you that the  
36 raising of that weight dependent upon the moving of that framework is the main object of that movable framework?

A. It may be.

X.-Q. 19. Now, Mr. Bell I want to ask you: Do you not know that it is?

A. Well, that is answering for the inventor. I cannot answer as to what the main object of the inventor was.

X.-Q. 20. In the model "Exhibit C," representing defendant's tension-apparatus, what is the object of the movable car "I" as lettered in that model?

A. To support the tension-chain sheave.

X.-Q. 21. Is that all?

A. Yes, sir.

X.-Q. 22. That car is a movable one, is it not?

A. It is.

X.-Q. 23. It would support the chain-sheave if it were not movable, would it not?

A. It would.

X.-Q. 24. What is the object of having it movable?

A. So as to move it away from the cable-sheave.

X.-Q. 25. What does that result in?

A. In keeping the counter-weight in a state of suspension?

X.-Q. 26. Does it not have the effect of raising that weight?

A. Yes, when moving it backward it raises the weight.

X.-Q. 27. Then one of the objects of that car is to raise the weight is it not?

A. It is.

X.-Q. 28. Why did you omit that object from one of your previous answers when I asked you to state the objects?

A. Because the raising of the weight is a result due to the moving of the car.

37 X.-Q. 29. Is not the raising of the weight by the car "I" in defendant's apparatus, the main object of the movement of that car?

A. Yes.

X.-Q. 30. Unless it did raise the weight by its movement, the mode of operation of defendant's apparatus could not be carried out, could it?

A. Yes.

X.-Q. 31. In what way?

A. By having a chain of variable length, such as is used in some other cable roads.

X.-Q. 32. But that is not defendant's apparatus, is it?

A. No.

X.-Q. 33. My question referred to the mode of operation of defendant's apparatus, which you have already testified is correct, for all practical purposes, as represented by the model "Exhibit C," and therefore I will repeat my question?

A. By using the defendant's construction a movable carriage is necessary.

X.-Q. 34. So as to raise the weight?

A. Yes.

X.-Q. 35. The chain-pulley car of defendant's apparatus, which is, in the model "Exhibit C," represented by the letter "C", is supported directly upon the main tracks which are there lettered "J", is it not?

A. Yes.

X.-Q. 36. And in complainant's apparatus the cable-pulley car, designated by the letter "C", is supported upon the rails or timbers "E" which form part of the framework "I", is it not?

A. It is.

X.-Q. 37. What difference, if any, results from this difference in arrangement in the operation and result of the two devices?

A. The results obtained are the same.

38 X.-Q. 38. Well now, answer the other portion of the question relating to the difference in operation; are not they the same also?

A. Partially. There would come a difference in regard to the way that the carriage "C" is stopped at either end of its stroke.

X.-Q. 39. But, so far as the movement of the car "C" in both devices between its limits is concerned, the operation is the same in the two devices, is it not?

A. It is.

X.-Q. 40. In the defendant's device what forms the limits of movement of the cable pulley-car "C"?

A. Two rods are passed through the chain-pulley car "I".

X.-Q. 41. In what way do those rods serve the purpose?

A. By means of the ends of the rods coming in contact with one end of the chain-pulley car "I" when the cable-pulley car "C" has run to the end of its stroke.

X.-Q. 42. That limit is at the ends of the rods which are adjacent to the cable-pulley car "C", is it not?

A. Yes, when the cable-pulley car "C" is traveling towards the car "I".

X.-Q. 43. In other words, that is the back limit of the movement of the car "C" is it not?

A. Yes, sir.

X.-Q. 44. Now, what forms the back movement of the limit of the car "C" in the complainant's device?

A. Its striking the bumpers which are mounted on the framework "E I".

X.-Q. 45. Now, in the defendant's device, how is the back-



ward movement of the car "I" limited, when said car is being moved to raise the weight?

A. The coming up on the ends of the rods which  
39 are fastened to the car "C" and pass through the car  
"I."

X.-Q. 46. Now, in the complainant's device, how is the backward movement of the movable framework "E I" limited?

A. By a buffer mounted on the framework "E I" coming in contact with the carriage "C."

X.-Q. 47. These buffers or limiting stops, which limit the respective movements of the cars "C" and "I" of the defendant's device, and which limit the respective movements of the movable framework "E I" and the car "C" of the complainant's device, are for the same purpose, are they not, and effect the same result in the operation of the two devices?

A. Yes, sir.

X.-Q. 48. Now, Mr. Bell, is it not a fact that the steps taken to operate the two devices are identical?

A. What do you mean by the word "steps?"

X.-Q. 49. The several operations which are taken to accomplish the result for which the two devices are intended.

A. Well, the results obtained are the same, but the addition of the secondary tracks in the model "Exhibit B" of the complainant's device makes the operation different.

X.-Q. 50. Do you mean by "the secondary tracks" the parts that are lettered "E" in complainant's device?

A. No, the parts that are lettered "J."

X.-Q. 51. Are not these the steps that are taken to operate both devices, namely: that the chain-pulley car "I" of the defendant's device, and the framework "E I" of the complainant's device, are held stationary by their pawls; that as the cable stretches the weights pull back upon the cable-pulley cars "C" of the two devices; that this movement of the cars "C" continues until said cars are limited in their movement  
40 by their respective stops or buffers and can move back-  
wardly no farther; that then the rope "P" of the two  
devices is tightened upon the gypsy "O" of the two  
devices, just previous to which the pawls of the chain-pulley  
"I" of the defendant's device, and those of the framework  
"E I" of the complainant's device are released, and there-  
upon through power transmitted from the cable acting through  
the gypsies "O" and ropes "P" and the blocks in the two  
devices through which the ropes pass, the chain-pulley ear of  
the defendant's device, and the movable framework "E I" of  
the complainant's device, are moved backwardly, leaving the  
cable-pulley cars "C" in position, and that this movement

continues until said car and framework are limited by their several limiting stops or buffers, which movement has the effect of raising the weights, and that then the chain-pulley car "I" of the defendant's device, and the movable framework "E I" of the complainant's device, are fixed in position by their pawls, and the action of the weights on the cable-pulley cars is resumed and continues as in the first instance?

A. Yes.

(Examination continued, in conformity with agreement of counsel, until to-morrow morning, 18th instant, at half past 10 o'clock.)

FRIDAY, September 18th, 1891.

Present: Mr. Booth, of counsel for complainant; Mr. Wheaton, of counsel for respondent.

Cross-examination of ARTHUR F. L. BELL (continued):

By Mr. BOOTH:

X.-Q. 52. Mr. Bell, in tension devices the weight should be of such a character as to create a tension just sufficient to  
41 get the required adhesion on the drivers, should it not?

A. Yes, sir.

X.-Q. 53. And it is also true, is it not, that the general purpose, and I might say the essential purpose, of these tension devices is to keep a uniform tension upon the cable at all times?

A. It is.

X.-Q. 54. Now, this purpose of keeping a uniform tension upon the cable at all times is realized by the tension devices of both the complainant and defendant, is it not?

A. Yes.

X.-Q. 55. Now, would you explain, briefly, Mr. Bell, how this is realized in those devices?

A. By having a weight suspended by a chain over a chain-sheave which is pulling the cable-pulley car with a power due to the weight of the counter-weight in the opposite direction to the pull of the main cable.

X.-Q. 56. And also because said weight allows the movement of the cable-pulley car in the direction of the strain on the cable; is that not so?

A. Yes, sir.

X.-Q. 57. Now, if the weight was so situated that while it would tend to pull the cable-pulley car towards it, it would yet not allow the cable-pulley car to move in the opposite direction at all, then there would not be a uniform tension on the cable, would there?



A. No; but practically speaking, there is never a uniform tension, or very seldom is; or, in other words, I might say that every few minutes the strain is unequal on a cable, due to the fluctuation of the weight up and down. Sometimes the weight will come up so far as to allow the cable-pulley car to strike its bumpers, which then throws an uneven strain on to the rope.

X.-Q. 58. But the main purpose of a tension device in keeping practically a uniform tension of the cable would be defeated, would it not, if the cable-pulley car could not move at all in the direction of the strain on the cable?

A. Yes, sir; it would be defeated in such a case.

X.-Q. 59. Now, if the cable-pulley car in the tension devices of the complainant and defendant were provided with pawls or dogs which were adapted to engage a fixed ratchet in such a manner as would permit the car to be pulled backward to keep a tension on the cable, but would not allow it to yield in the other direction to the strain of the cable at all, then in such a case there would not be a uniform tension on the cable, would there?

A. Not as uniform a tension as they now exert.

X.-Q. 60 (X.-Q. 59 repeated.) The question is, is there a uniform tension upon the cable in such a case?

A. No. We do not get a uniform tension by any of these devices.

X.-Q. 61. Well, by the devices shown by these models, exhibits "B" and "C," you get a practically uniform tension, do you not?

A. Yes, sir.

X.-Q. 62. Now, Mr. Bell, I wish you would look at the patent granted to William Eppelsheimer, defendant's "Exhibit 1." By the arrangement there shown, what strain on the cable would there be to wind up the weight, over that ordinarily exerted by the weight?

A. The combined strains on the cable would have to be greater than the actual weight represented by "J."

X.-Q. 63. By the proportionate parts there shown it would have to be three times greater, would it not, approximately?

A. It might be by the drawing, but if I recollect properly they speak about making that whatever they require. It can be made so that it is just as I answered in my previous statement.

X.-Q. 64. That is, that in any case it must be greater?

A. Yes, sir; in any case it would have to be slightly greater.

X.-Q. 65. But looking at the drawing and estimating the diameter of the pinion M to be one-half the diameter of

that of the drum H, on which the rope I is wound, then the strain on the cable would have to be three times that ordinarily exerted by the weight to wind up the weight, would it not?

A. No, I do not think it would have to be three times. I think it would have to be twice by this arrangement.

X.-Q. 66. Well, would it not be twice, if the diameter of the pinion was the same as that of the drum?

A. It would. My previous answer was incorrect. Under the arrangement shown in the drawing of the patent "Exhibit 1" it would take three times the strain to raise the weight but I will say that these conditions only take place when the cable-pulley car mechanism is arranged in a certain way. If the pawls K and O are disengaged and the pawl *g* is in contact the action of the counter-weight on the cable-pulley car C has a flexible tension on it, just the same as in the arrangements shown in the models Exhibits "B" and "C."

X.-Q. 67. By that you mean that in such a case it would be no more than the attachment of a suspended weight directly to the cable-pulley car, do you not?

A. Yes, but the action on the cable-pulley car C is exactly the same as if it had the chain-pulley car I, when the said car I is in a state of rest.

X.-Q. 68. As for example if that car were fixed?

A. No, I would not care to answer it in that way, because by the compensating attachment for shortening the chain I, they gain the same advantage as is gained by having the movable chain-pulley cars I and framework E I.

X.-Q. 69. Yes, but in your answer you had left out what you call the compensating attachment, and were simply speaking of having the pawl *g* in the drum to hold the drum stationary, so that in such a case it would after all be as if the chain-pulley car I were stationary, would it not, fixed?

A. Yes, for the time being; but in both cases the adjustment of the counter-weight J, so that it will neither strike the bottom of its pit nor the under side of the chain-pulley car—the adjustment in each case has to be done by the operator.

X.-Q. 70. The case that you have supposed, in your answer to X.-Q. 66, Mr. Bell, is represented, as I understand it by that language found in the specification of the Eppelsheimer patent, in column one, is it not, as follows:

"There have been heretofore two ways to stretch the rope, "first, by attaching a weight to a frame either sliding or "mounted on wheels, which carries the rope or chain-pulley;" and is also represented by that language in the specification of the complainant's patent beginning at line 31, as follows:

“ The usual method for keeping a tension upon the cable is to pass it around large pulleys at one or both ends, and these pulleys are mounted upon trucks. A chain passes from the rear end of the truck over a stationary pulley, and is attached to a heavy weight within a pit, and this produces the required tension?”

A. No, sir; that is the way it was previously done before the Eppelsheimer patent, but Eppelsheimer, by attaching his drum A and ratchet-wheel G and pawl *g*, overcame the objections which were in those methods and succeeded in obtaining the same advantage as is obtained by the devices represented by the models exhibits “ B ” and “ C. ” For instance, in the complainant’s patent, the lines which follow after those which you read to me say: “ The cable soon stretches, however, so that the greatest depth of pit which can be conveniently used within a roadway is insufficient for the sinking of the weight, and the cable must be taken up either by removing a portion or by taking one or more turns around the drum or pulley. This process must soon be repeated, and causes considerable delay and inconvenience. ” Now, this is exactly what Eppelsheimer overcame by the arrangement which I describe in the answer referred to.

X.-Q. 71. Is it not a fact that he overcame these difficulties and obtained the advantages which you mention not simply by the attachment of the winding drum having the ratchet-wheel G and pawl *g*, but also by the attachment to the device of the rack N, the pinion M, the ratchet L and the pawl K?

A. No, I do not see that all those elements were necessary.

X.-Q. 72. If those elements were omitted from the Eppelsheimer patent, leaving merely the winding drum H and the ratchet-wheel G and pawl *g*, could the mode of operation described in that patent be carried out at all?

A. Yes, sir.

X.-Q. 73. Do you mean to say that with those elements omitted that the strain upon the cable tending to move the car C forwardly, or in the direction of that strain, would cause the shortening of the rope I, whereby the weight J would be raised and kept suspended in the pit, no matter what might be the position of the cable-pulley car C on its tracks?

A. Yes, sir; the weight J would move up and down and on its extreme upward movement it would strike any obstacle which might be put in its way for that purpose, and in its downward stroke would strike the bottom, which latter condition would reduce the strain on the main cable A, but this is an occurrence which is happening all the time in the case of the machines represented by the model exhibits “ B ” and “ C. ”

X.-Q. 74. In such an apparatus, where the rack N, the pinion M, the ratchet L and pawl K were omitted, leaving only the drum H with its ratchet G and pawl *g*, would the drum turn at all to wind up the rope I under the strain of the cable pulling the pulley-car forward?

A. No, sir.

X.-Q. 75. Then in such a case the drum H would not be a winding drum at all, but would be the same as any fixed portion of the car C to which the rope I might be attached, would it not?

A. Yes, sir.

X.-Q. 76. Then why is not such a case represented and described by the language which I have quoted from the complainant's patent as being the old and usual way of doing it?

A. I don't believe that I denied that that was the old and usual way to do it.

X.-Q. 77. (X.-Q. 76 repeated.)

A. I did not understand that your question meant what was the older way of applying tension. If you meant to ask me what was the older way of applying tension, the paragraphs taken from the Eppelsheimer patent and the complainant's patent which you have read do describe older ways of applying tension.

X.-Q. 78. What I mean is this: Is not a device, such as is described by my question, in which the drum H does not turn at all, and therefore simply forms a portion of the car C, the old way of effecting the tension, or substantially the old way of effecting the tension?

47 A. In answering this question I cannot assume that the drum H is a stationary part of this car, any more than that the framework E I of the model "Exhibit B," or the chain-pulley car I of the model "Exhibit C" are stationary. Now, if the drum H in the patent "Exhibit 1" never was to be moved but was bolted solid it would then be the same as the old arrangement, but it is so arranged that directly the main cable becomes so slack that the weight J is striking at the bottom of the pit the operator can apply a power to this drum H and shorten the tension chain at his will. The same thing occurs with respect to the devices represented by the models exhibits "B" and "C". The chain-pulley trucks are stationary until the said operator applies a power to move them, which instead of shortening the chain carries the chain-pulley truck away from the cable-pulley truck, and the results obtained are exactly the same in the three cases.

X.-Q. 79. The chain might also be shortened, might it not, by taking out some of its links, and the weight thus raised?

A. In which cases?

X.-Q. 80. In any case?

A. Yes, the same would apply to the three cases.

X.-Q. 81. Now, you know from reading the Eppelsheimer patent, "Exhibit 1," do you not, that the drum H is so connected with the car C that it has no movement forward and back independent of said car?

A. It has not.

X.-Q. 82. In this respect therefore that drum differs from the chain-pulley cars or frames of Exhibits "B" and "C," does it not?

A. Yes.

X.-Q. 83. So that so far as your answer is concerned you suppose that a man whenever he sees the weight near the bottom of the pit in the machine described by the  
48 Eppelsheimer patent can turn that drum and raise the weight up?

A. Yes, sir.

X.-Q. 84. What is the usual weight used in devices of this character?

A. The weight will run from two to six thousand pounds, or more or less: In the defendant's road we have a weight of from four to six thousand pounds; that is, to the best of my recollection.

X.-Q. 85. Now, referring to that portion of the Eppelsheimer device consisting of the rack N, the pinion M, the ratchet L and pawl K, which constitute the automatic means by which the weight is raised when needed, you have already testified that the strain on the cable must be greater than the strain ordinarily exerted by the weight in order to operate this automatic mechanism and raise the weight?

A. Yes.

X.-Q. 86. Now, does not this result in raising the weight through a greater distance than the distance through which the car C moves forwardly under the strain?

A. Yes, sir.

X.-Q. 87. For example, if it required three times the strain of the cable to raise the weight than if the car moved forwardly under that strain one foot, the weight would be raised three feet, would it not?

A. Yes, according to the provisions that are shown in the drawings of the patent "Exhibit 1."

X.-Q. 88. Now, would this not result in finally raising the weight J up into contact with the wall of the pit above and stopping it?

A. Yes, when that arrangement was used.

X.-Q. 89. Then when the weight was so raised in contact



with the wall above, the car C could not yield forwardly under the strain of the cable, could it?

A. No, sir.

X.-Q. 90. It would be stopped by the weight would it not?

49 A. Yes, sir.

X.-Q. 91. And it would be the same in effect as if the car C were provided with pawls which allowed it to move back but prevented it from moving forward, would it not?

A. Yes, sir. I might say right here that he does not have to use it that way. One of his claims covers a different arrangement from that.

X.-Q. 92. Which claim?

A. Claim 3.

X.-Q. 93. Claim 3 includes the pawl O, does it not?

A. Yes, sir.

X.-Q. 94. When the pawl O is in engagement with the rack N it will not allow the car C to move forward at all, will it?

A. No, sir.

X.-Q. 95. Well, then, that produces the same result, does it not?

A. It would, if the pawl O were allowed to be in the rack all the time, but it is not shown in the rack, and it is not intended to be in the rack only as occasion requires.

X.-Q. 96. It is not intended to be in the rack when the other mechanism is used; is not that so?

A. That wouldn't make any difference.

X.-Q. 97. I refer you to the language of the specification of the Eppelsheimer patent, near the bottom of column two, as follows: "Should the frame C not move in the contrary direction at all, then the pawl O, fastened to the frame C, is let down into the rack N." Does not this imply that it is the intention for that pawl to keep the car C from moving forwardly under the strain of the cable?

A. No, sir; because even with the pawl on, in the next sentence he says: "In such a case I may omit the shaft F, 50 with its mechanism attached to it, and fasten the weight J to the frame C, as usual, and use only the rack N and pawl O."

X.-Q. 98. When he uses the pawl O in the rack N, the car C will not move forward, will it?

A. No, sir.

X.-Q. 99. Now, Mr. Bell, referring to the Eppelsheimer patent, the pulley Q shown in Fig. 1 of the drawings of said patent, over which the weight-suspending rope I passes, is stationary, is it not?

A. Yes, sir.

X.-Q. 100. In this respect it differs from the chain-pulley G of both the complainant's and defendant's devices, does it not?

A. No, sir; not if we look at it in the same way that you do. It is no more stationary than the drum H would have been stationary in the frame C and give the same results as if the tension chain I were fastened directly to the truck.

X.-Q. 101. The chain-pulley Q of the Eppelsheimer patent cannot be moved forward and back, can it?

A. No, sir.

X.-Q. 102. The chain-pulley G of both the complainant's and defendant's devices can be moved forward and back, can they not?

A. Yes, sir. Not automatically, but when it is necessary.

X.-Q. 103. And it is necessary in the operation of those devices, is it not?

A. Yes, sir.

X.-Q. 104. Now, in the Eppelsheimer device the limit of the backward movement of the car C is when said car comes in contact with the pulley Q, is it not?

A. Yes, sir; but the same condition occurs when the tension apparatus of the devices represented by the models Exhibits "B" and "C" have reached the end of their tracks, namely, the secondary track of "Exhibit B" and the main track  
51 of "Exhibit C," and then the cable-pulley cars C will strike the trucks upon which the chain-sheaves are mounted, in the same way as in the Eppelsheimer patent.

X.-Q. 105. But in the mean time, in the complainant's and defendant's devices, the cable-pulley cars, when they reach the chain-pulleys, are not limited in their backward movement, are they?

A. No, sir.

X.-Q. 106. In the complainant's device, what is the object of the secondary tracks J?

A. To have a long distance at hand for taking up the stretch of the cable.

X.-Q. 107. In the defendant's device what is the object of the device marked J?

A. The same object. And the same action takes place in the device described in the Eppelsheimer patent. They are not limited in the distance between their cable-truck C and the chain-sheave Q.

Re-examination of ARTHUR F. L. BELL.

By Mr. WHEATON.

R.-Q. 1. Suppose in the defendant's apparatus the chain-sheave G was fixed permanently in position at the point where



the bar N is now shown, and a rope was used in place of the chain to suspend the weight by, and the end of the rope farthest from the weight was attached to the car by means of a drum having a ratchet and pawl like the ratchet G and pawl h, as in the Eppelsheimer patent, would it then operate for taking up the stretch of the main cable precisely in the same manner as it does now?

A. Yes, sir.

52 R.-Q. 2. In that case could the position of the weight in suspension always be regulated by the use of the drum with its ratchet and pawl and the crank P, or its mechanical equivalent, all of which are mentioned in the Eppelsheimer patent?

A. Yes, sir.

R.-Q. 3. By the use of the crank P or its mechanical equivalent, or its drum, ratchet and pawl, could the tension weight be both raised and lowered at the will of the operator?

A. Yes, sir.

R.-Q. 4. What advantage has the defendant's apparatus over such an apparatus as that would be, if any?

A. I don't know of any advantage. The results obtained would be exactly the same.

R.-Q. 5. In all three of the instances; that is, what is shown in the Eppelsheimer patent, what is shown in the complainant's patent, and what is shown in the defendant's apparatus, is the stretch or slack of the main cable taken up by causing the main cable-sheave car to move backwards against the strain of the cable?

A. Yes, sir.

R.-Q. 6. You have spoken of the operation of bumpers. Do you find any bumpers mentioned in the complainant's patent?

A. No.

R.-Q. 7. As described in the complainant's patent, are the timbers E carried upon the lower car or slide which operates as a car?

A. Yes, sir.

R.-Q. 8. Do those timbers serve as tracks for the upper car C to run upon?

A. Yes, sir.

R.-Q. 9. Are there any timbers in the chain-sheave car I in the defendant's apparatus which serve as tracks for another car to run upon?

A. No, sir.

53 R.-Q. 10. Then do the timbers E in the complainant's apparatus perform a duty which is not performed by any timbers, or any device in the chain-sheave car I

of the defendant's apparatus? I refer to the duty of serving as tracks for another car to run upon?

A. Yes, sir.

Re-cross-examination of ARTHUR F. L. BELL.

By Mr. BOOTH.

R.-X.-Q. 1. In the complainant's device the timbers E form a support for the cable pulley-car C, do they not?

A. Yes.

R.-X.-Q. 2. There is a support in the defendant's apparatus for the cable-pulley car, is there not?

A. Yes, sir.

R.-X.-Q. 3. What is the support?

A. The main tracks J.

R.-X.-Q. 4. Now, Mr. Bell, in the device represented by the Eppelsheimer patent there would have to be a chain, in actual practice, about one hundred and fifty feet in length, would there not, to suspend the weight?

A. Yes, sir; chain or equivalent.

R.-X.-Q. 5. In the defendant's apparatus the weight suspending chain is about twelve feet long, is it not?

A. Yes; but there is nothing which requires any given length in either case.

R.-X.-Q. 6. Is there any advantage in using a chain twelve feet long over using one a hundred and fifty feet long?

A. Well, there would be if a man used a chain, but you wouldn't use a chain the full length. You would use a chain only where it pulled over the pulley, and you would use a rope the rest of the way.

R.-X.-Q. 7. The defendant uses a chain, does it not?  
54 A. I referred to the Eppelsheimer patent when I spoke of the combination of rope and chain.

R.-X.-Q. 8. Did you devise the tension apparatus for the defendant?

A. Yes, sir.

R.-X.-Q. 9. Can you tell why you did not make it like the Eppelsheimer device?

A. Well, I did not know the Eppelsheimer device at that time.

R.-X.-Q. 10. As a mechanical expert, Mr. Bell, do you consider the Eppelsheimer device a practical device?

A. Some parts of it are practicable, and others would entail complication.

R.-X.-Q. 11. You would not have made such a device even if you had known of it, would you?

A. I would not have used the drum, but in its place I would

have used a block and tackle, as is now being used, as I understand, on one road on this coast.

R.-X.-Q. 12. Would you have used the automatic devices of the Eppelsheimer patent?

A. No, sir.

R.-X.-Q. 13. Did you, when you devised this device for the defendant, know of the complainant's tension device?

A. Yes, sir.

R.-X.-Q. 14. You know how it was constructed, and how it operated?

A. Yes, sir.

R.-X.-Q. 15. Did you know that there was a patent upon it?

A. Yes, sir. I also had drawings of one or more other devices that were being used in the East.

R.-X.-Q. 16. Well, the complainant's device, in your opinion as a mechanical expert, is a more practical device than that shown by the Eppelsheimer patent?

55 A. Yes, sir; but I think the defendant's device is more mechanical than any of them.

R.-X.-Q. 17 (By Mr. Wheaton). Suppose, Mr. Bell, that in the defendant's apparatus the connecting rods between the two cars were entirely removed and the chain-sheave car were also removed, and the sheave placed away down near the end of the track where the bar N is, and the same blocks and tackle which are now between the chain-sheave car and the bar N were used to connect the end of the chain with the cable-sheave car C, would the apparatus work without the addition of any more chain, or any more rope of any kind?

A. Yes, sir.

ARTHUR F. L. BELL.

(Testimony closed.)

I certify that the foregoing depositions were taken at the place stated in the caption to said depositions, at the several times set forth in said depositions, in my presence, and in the presence of counsel for the respective parties to the cause in said caption entitled; that, previous to giving his testimony, each of the witnesses in said depositions named was by me duly sworn to tell the truth, the whole truth and nothing but the truth, in said cause; that said depositions were taken down in shorthand writing and transcribed by A. L. Coombs, pursuant to agreement of counsel; that said depositions, after being so transcribed, were read by, or by me to, the said witnesses, and signed by them, respectively; and that I have retained said depositions for the purpose of delivering the same with my own hand to the Court for which they were taken.

Accompanying said depositions, and forming part thereof, are the several exhibits introduced in connection therewith, and referred to and specified therein.

I further certify that I am not attorney nor of counsel for any of the parties to said cause, nor in anyway interested in the event thereof.

In witness whereof, I have hereunto set my hand, this 22d day of September, A. D., 1891.

S. C. HOUGHTON,  
*Examiner in Chancery, U. S. Circuit Court, Northern Dist. of Cal.*

(Endorsed:) Opened and refiled Sept. 23, 1891. L. S. B. Sawyer, Clerk.

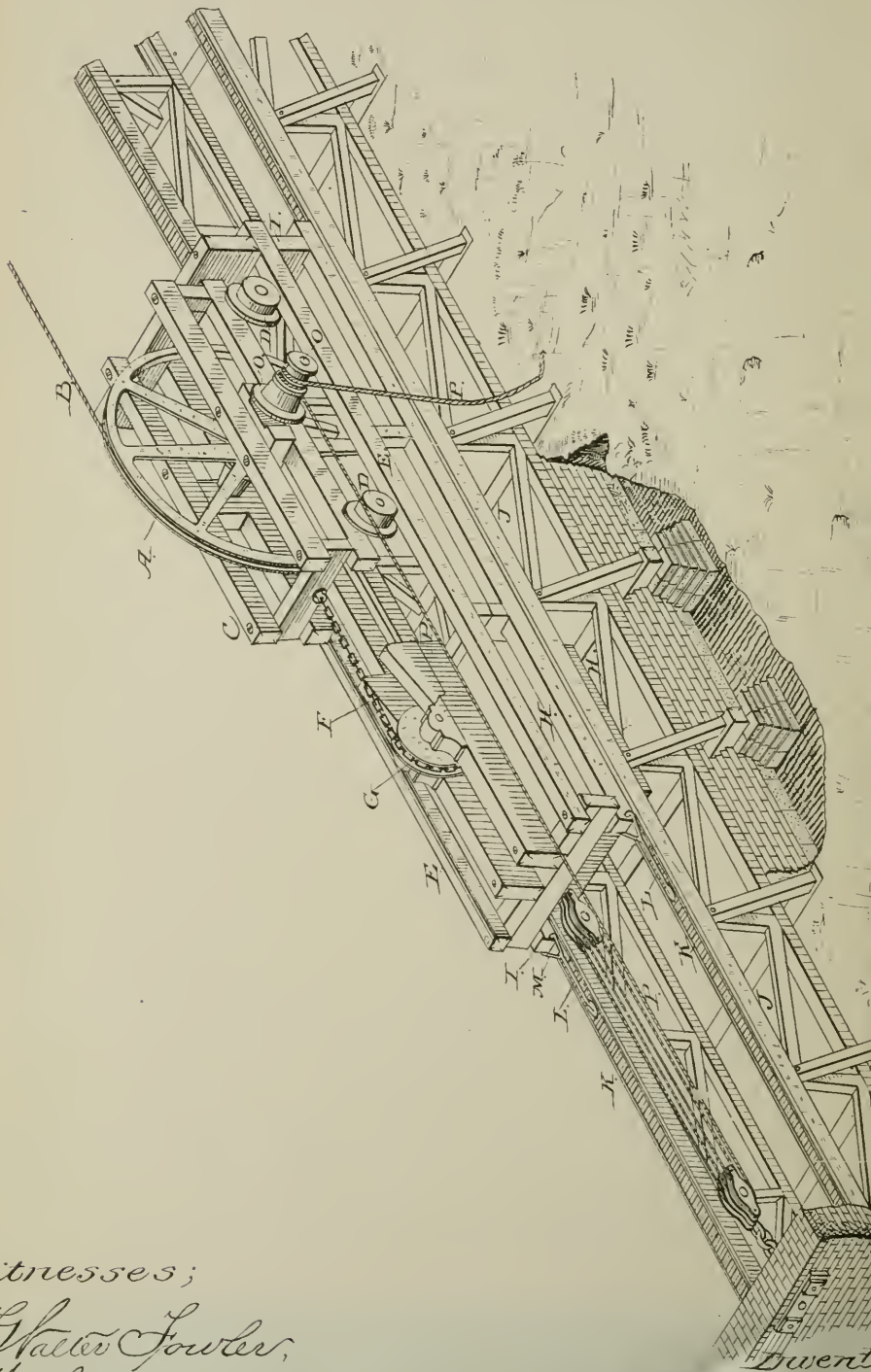


H. ROOT.

TENSION APPARATUS FOR CABLE RAILWAYS.

No. 244,147.

Patented July 12, 1888



Witnesses;  
S. Walter Fowler,  
Wm. Leonard

Inventor  
Henry Root  
By  
A. H. Evans



57

*Complainant's Exhibit A.*

U. S. Circuit, N. Dist. of Cal.

PACIFIC CABLE RY. Co.,	}	No. 10987.
<i>vs.</i>		
CONS. PIEDMONT CABLE Co.		

Complainant's Exhibit A.

(Patent Sued On.)

S. C. H., *Examiner.*

UNITED STATES PATENT OFFICE.

Henry Root, of San Francisco, California.

*Tension Apparatus for Cable Railways.*

Specification forming part of Letters Patent No. 244,147, dated July 12, 1881. Application filed May 6, 1881. (No Model.)

To all whom it may concern:

Be it known that I, HENRY ROOT, of the City and County of San Francisco, State of California, have invented an Improved Tension Apparatus for Cable Railways; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in the construction and working of cable railways; and it consists in an improved means for taking up the slack of the cable as it gradually elongates by use.

Referring to the accompanying drawings for a more complete explanation of my invention, the figure is a perspective view of my apparatus.

In the construction of railways in which cars are propelled upon a track by means of an endless cable moving in a tube or tunnel beneath the surface of the ground and connected with the cars by means of gripes upon the latter means must be provided to take up or compensate for the elongation of the cable which takes place with use, and when the cables are of considerable length this elongation is so considerable that when ordinary means are employed they are insufficient for the work and the cable must be cut and a portion taken out or it must be passed one or more times around a drum to take it up.

The usual method for keeping a tension upon the cable is to pass it around large pulleys at one or both ends, and these pulleys are mounted upon trucks. A chain passes from the rear end of the truck over a stationary pulley, and is attached to a heavy weight within a pit, and this produces the required tension. The cable soon stretches, however, so that the greatest depth of pit which can be conveniently used within a road-

W. EPPELSHEIMER.

TIGHTENING AND STRETCHING ROPES, BELTS, &c.

No. 193,939.

Patented Aug. 7, 1877.

Fig. 1.

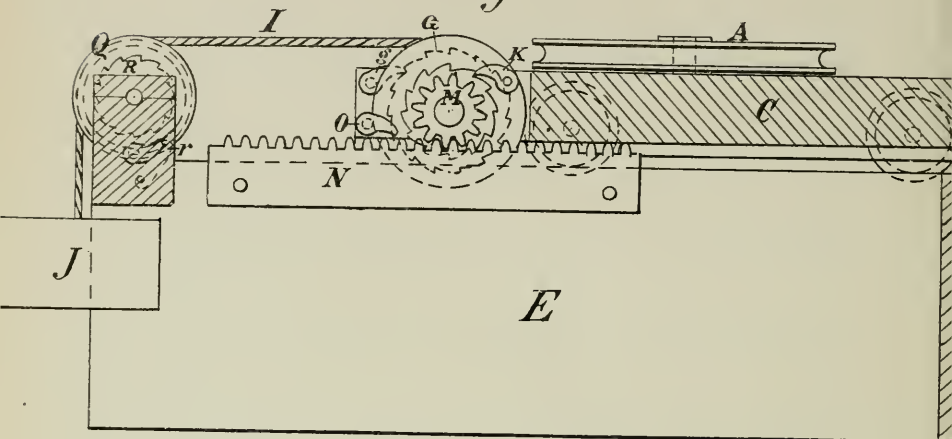


Fig. 2.

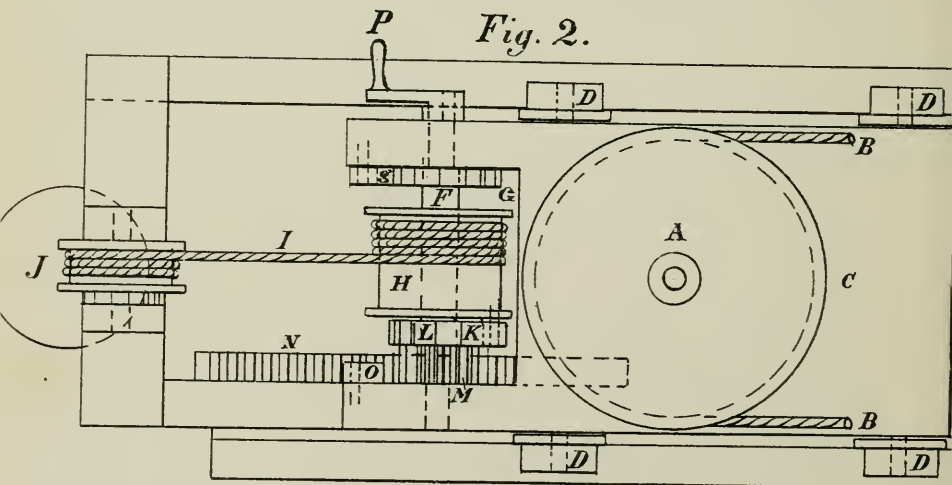


Fig. 3.

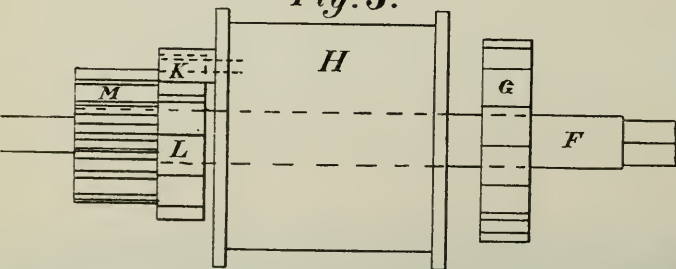
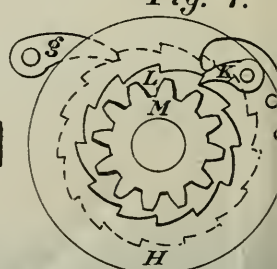


Fig. 4.



Witnesses:

H. J. Hutton.

Inventor:

William Eppelsheimer.

The frame J and racks may be made of any desirable length, from sixty to one hundred and fifty feet, depending upon the length of cable which is running. The adjustment is thus made ample for any stretching of the cable. In the present case I have shown a vertical wheel, such as may be used in the engine house behind the drums, and where all the take-up may be made on level roads. At the ends of the roads the apparatus will be connected with the horizontal sheaves around which the cable passes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A tension and compensating apparatus for railway cables, consisting of the cable pulley A having its axis journaled upon the movable car C, and the chains F and weight H, in combination with the rails or timbers E upon which the car travels, mounted upon a frame I, which moves upon a secondary track J, substantially as and for the purpose herein described.

2. The car C, moving upon the rails E and supporting the cable-pulley A, the weight H, and chain F, and the rails E, moving upon a secondary tramway J, in combination with the operating tackle and the holding-racks and pawls, substantially as herein described.

In witness whereof I have hereunto set my hand.

HENRY ROOT.

Witnesses

S. H. NOURSE,  
FRANK A. BROOKS.

(Endorsed:) Opened and re-filed Sept. 23, 1891. L. S. B. Sawyer, Clerk.

58

*Respondent's Exhibit 1.*

U. S. Circuit Court, N. Dist. of Cal.

PACIFIC CABLE R'Y Co.

vs.

CONS. PIEDMONT CABLE Co. }

*Respondent's Exhibit 1.*

(Eppelsheimer Patent, Aug. 7, 1877.)

S. C. H. *Examiner.*

UNITED STATES PATENT OFFICE.

William Eppelsheimer, of San Francisco, California.

*Improvement in Tightening and Stretching Ropes, Belts, &c.*

Specification forming part of Letters Patent No. 193,939, dated August 7, 1877; application filed May 16, 1877.

To all whom it may concern:

Be it known that I, William Eppelsheimer, of San Francisco, in the County of San Francisco, State of California, have invented certain new and useful Improvements in Tightening and Stretching Ropes, Chains, or Bands, &c., and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The object of my invention is to furnish a device by which the endless rope, &c., for hauling or transmission of power may always be kept at a certain tension by a weight, which is attached to the apparatus in such a way that it will yield when the rope is subject to a greater strain than intended, the limits of which can be perfectly regulated, or that the weight cannot yield at all, however great the strain may be to which the rope is exposed.

There have been heretofore two ways to stretch the rope—first, by attaching a weight to a frame either sliding or mounted on wheels, which carries the rope or chain pulley; secondly, by applying a block or screw to it. In the first way the rope is stretched automatically in proportion to the weight applied. If the rope is subjected to a greater strain than that which half of the weight exerts it will yield. As this weight is usually made as light as circumstances permit, the rope is subject to jerks when power is suddenly applied. This jerking is avoided when the rope is stretched, as in the other way; but this requires considerable attention.

My invention combines both systems. It allows the stretching of the rope automatically, and prevents the yielding either entirely, or only to such a force as is desired.

Referring to the accompanying drawing, Figure 1 is a longitudinal section. Fig. 2 is a ground plan. Fig. 3 is a drawing of the working mechanism, drawn to a larger scale. Fig. 4 is a side view of the latter.

A is the pulley around which the rope B is stretched. On the rails E E run wheels D D D D, carrying the frame C, on which is mounted the pulley A. The frame C carries also a shaft, F, to which is keyed a ratchet-wheel, G, and a drum, H. The pawl *g*, for the ratchet-wheel G, is fastened onto the frame C. Around the drum H winds the chain or rope I, onto which is attached the weight J, by which the rope B is stretched. On one side of the drum H is the fulcrum for a pawl, K, which is pressed into a ratchet-wheel, L, whose teeth stand in opposite direction to those on G. L is loose on shaft F, but it is firmly connected to a pinion, M, also loose on F, which gears into a rack, N.

It will be easily seen that if the drum H turns in one direction the pawl K glides over the teeth of ratchet-wheel L, and does not communicate any motion to it, whereas if the drum H turns the other way the pawl K acts as a coupling, taking the ratchet-wheel L, and also the pinion M, along. Instead of ratchet-wheel L and pawl K, any other suitable clutch-coupling acting automatically may be applied.

It will be seen that when the rope B is slack the weight J will pull on drum H upon shaft F, which is prevented from turning by ratchet-wheel G, and will move the frame C in opposite direction of the rope B. The clutch L will be out of connection with the drum H, and let the pinion M move loosely in the rack N. As soon as an excess of pressure on the rope B is produced, by change of temperature or other causes, then the frame C will move in an opposite direction, which causes the pinion M to revolve in rack N, and produce by the coupling L a turning of the drum H, winding up the weight J. The unwinding of the weight will be prevented by the ratchet-wheel G and pawl *g*. The force to move the pulley A in an opposite direction as it is pulled by the weight J is regulated by the difference of the diameters of the drum H and the pinion M. Should the frame C not move in the contrary direction at all, then the pawl O, fastened to the frame C, is let down into the rack N. In such a case I may omit the shaft F, with its mechanism attached to it, and fasten the weight J to the frame C, as usual, and use only the rack N and pawl O.

Should the stretching weight J touch the floor, I shorten the stretching-chain I by turning shaft F by means of crank P, or other suitable mechanism, and winding the chain I around drum H. If it should not be desirable to increase the difference between the radius of the pinion M and the drum H much, then an equal effort for retarding may be obtained by applying a friction-brake to shaft F or drum H.

Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

1. The mounted pulley A on frame C, in combination with shaft F, ratchet-wheel G, and its pawl *g*, drum H, with weight J, coupling L, pinion M, and rack N, substantially as shown and described.

2. The mounted pulley A on frame C, with stretching-weight J, in combination with pawl O and rack N, substantially as shown and described.

3. The mounted pulley A on frame C, in combination with the shaft F, having the ratchet-wheel G, its pawl *g*, drum H,



with weight J, pawl O, and rack N, substantially as shown and described.

WILLIAM EPPELSHEIMER.

Witnesses:

A. V. HEYNE,  
J. C. CEBRIAN.

(Endorsed:) Opened and re-filed Sept. 23, 1891. L. S. B. Sawyer, Clerk.

59 *Petition of Respondent for an Order Allowing an Appeal.*

In the United States Circuit Court, Northern District of California.

PACIFIC RAILWAY COMPANY, Complainant,	} In Equity. No. 10987.
<i>vs.</i>	
CONSOLIDATED PIEDMONT CABLE COMPANY, Respondent.	

The Consolidated Piedmont Cable Company, respondent in the above entitled cause, feeling itself aggrieved by the decretal order made by said Court on the 19th day of March, 1892, and the interlocutory decree made and entered on the 13th day of April, 1892, in pursuance of said order, whereby it was ordered, adjudged and decreed that the first and second claims of complainant's patent sued upon in said cause, were good and valid in law, and that complainant was entitled to an injunction, and whereby the complainant was awarded an injunction and a reference to the Master in Chancery of said Court, for an accounting with costs, comes now by Wheaton, Kalloch & Kierce, its solicitors, and petitions said Court for an order allowing said respondent to prosecute an appeal from said interlocutory decree to the Honorable the United States Circuit Court of Appeals for the Ninth Circuit, under and according to the laws of the United States in that behalf made and provided, and also that an order be made fixing the amount of security which respondent shall give and furnish upon said appeal, and that upon the giving of such security all further proceedings in this Court be suspended and stayed until the determination of said appeal by said United States Circuit Court of Appeals for the Ninth Circuit.

60

And your petitioner will ever pray.

WHEATON, KALLOCH & KIERCE,  
*Solicitors for Respondent.*

(Endorsed:) Filed April 25, 1892. L. S. B. Sawyer, Clerk.



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*Assignment of Errors.*

In the United States Circuit Court of Appeals, for the Ninth Circuit.

CONSOLIDATED PIEDMONT CABLE COMPANY, Appellant, }  
*vs.*  
 PACIFIC CABLE RAILWAY COMPANY, Appellee. }

Now comes the Consolidated Piedmont Cable Company, appellant herein, by Wheaton, Kalloch & Kierce, its solicitors and counsel, and particularly specifies the following as the errors upon which it will rely, and which it will urge upon its appeal in the above entitled cause:—

1.

That the Circuit Court of the United States for the Northern District of California erred in holding that the appellant herein infringed upon the first claim of the letters patent sued upon.

2.

That the said Court erred in holding that the appellant herein infringed upon the second claim of the letters patent sued upon.

3.

That the said Court erred in holding that the alleged infringing tension apparatus contained the combination called for in the first claim of appellee's patent, inasmuch as the evidence showed that the secondary track called for by said claim was not in appellant's tension apparatus.

4.

62 That the said Court erred in holding that the alleged infringing tension apparatus contained the combination called for in the second claim of appellee's patent.

5.

That the said Court erred in overruling the objection of the appellant to the following question asked the witness Arthur F. L. Bell on cross-examination:

“ X.-Q. 4. Now, looking at complainant's ‘ Exhibit C ’ which is the model of the defendant's tension apparatus, and observing the framework or car which is marked ‘ I ’ on that model, and which carries the pulley over which the weight suspending chain passes, tell the Court what different function, if any, it has in the mode of operation of defendant's tension apparatus, from the function of the movable framework of

complainant's apparatus, which consists of the connected timbers 'E' and 'I'."

## 6.

That the said Court erred in sustaining the first and second claims of appellee's patent sued upon.

## 7

That the said Court erred in ordering an interlocutory decree against appellant, ordering, adjudging and decreeing that the appellee is entitled to an injunction, and decreeing a reference to the Master in Chancery of said Court for an accounting.

In order that the foregoing assignment of errors may be and appear of record, the appellant presents the same to the Court and prays that such disposition be made thereof as in accordance with law and the statutes of the United States in such cases made and provided.

63 All of which is respectfully submitted.

WHEATON, KALLOCH & KIERCE,

*Solicitors for Appellant, Respondent Below.*

(Endorsed:) Filed April 25, 1892. L. S. B. Sawyer, Clerk.

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*Order Allowing Appeal.*

At a stated term, to wit, the February term, A. D. 1892, of the Circuit Court of the United States of America, of the Ninth Judicial Circuit, in and for the Northern District of California, held at the court room in the City and County of San Francisco, on Monday, the 25th day of April, in the year of our Lord one thousand eight hundred and ninety-two.

Present: The Honorable Thomas P. Hawley, United States District Judge, District of Nevada.

PACIFIC CABLE RAILWAY COMPANY,

*vs.*

CONSOLIDATED PIEDMONT CABLE COMPANY.

} No. 10,987.

On motion of F. J. Kierce, Esq., of counsel for respondent, and appellant, it is ordered that an appeal to the United States Circuit Court of Appeals for the Ninth Circuit, from the Interlocutory Decree heretofore filed and entered herein, to wit: on the 13th day of April, 1892, be and the same hereby is allowed, and that a transcript of the record, testimony, exhibits and all proceedings herein be forthwith transmitted to said United States Circuit Court of Appeals for the Ninth Circuit, upon said respondent and appellant giving a bond in the sum of five hundred dollars.

On motion of F. J. Kierce, Esq., for said respondent, W. F.

Booth, Esq., counsel for complainant having been heard in opposition thereto, it is ordered that the injunction herein be suspended pending the appeal herein upon said respondent giving a bond in the sum of one thousand dollars, said respondent to have three days within which to file said bond during which time said injunction will be stayed without bond.

66 *Order extending time to file bond.*

In the United States Circuit Court, Northern District of California.

PACIFIC CABLE RAILWAY COMPANY, Complainant, }  
*vs.*  
 CONSOLIDATED PIEDMONT CABLE COMPANY, }  
 Respondent. }

Good cause therefor appearing it is ordered that the respondent above named have two days further time from the date hereof within which to prepare and file bond on suspension of injunction in the above entitled cause.

Dated April 28th, 1892.

(Signed)

HAWLEY,  
*Judge.*

(Endorsed:) Filed April 28, 1892. L. S. B. Sawyer, Clerk.

67 *Bond on Appeal.*

In the United States Circuit Court of Appeals, Ninth Circuit.

CONSOLIDATED PIEDMONT CABLE COMPANY, Appellant, }  
*vs.*  
 PACIFIC CABLE RAILWAY COMPANY, Appellee. }

Know all men by these presents, that we, Montgomery Howe and Phebe A. Blair are held and firmly bound unto the above named appellee, the Pacific Cable Railway Company, in the sum of five hundred dollars, lawful money of the United States of America, to be paid to the said appellee, its successors and legal representatives, to which payment, well and truly to be made, we bind ourselves and each of us jointly and severally, and our and each of our heirs, executors and administrators firmly by these presents.

Dated this 29th day of April, 1892.

The condition of the above obligation is such, that whereas said appellant has taken an appeal to the United States Circuit Court of Appeals, for the Ninth Circuit, to reverse the interlocutory decree rendered and entered by the Circuit Court of

the United States, Ninth Judicial Circuit, in and for the Northern District of California, in the case entitled Pacific Cable Railway Company *vs.* Consolidated Piedmont Cable Company, No. 10,987, which said interlocutory decree was rendered in said Circuit Court on the 19th day of March, 1892, and signed and entered in said Court on the 13th day of April, 1892, being a day in the February Term, 1892, of said Circuit Court.

Now, therefore, if the above named appellant shall prosecute its said appeal to effect and answer all damages and costs if it shall fail to make good its plea, then this obligation shall be void, otherwise to remain in full force and effect.

Signed, sealed and delivered in presence of W. L. Prather.

MONTGOMERY HOWE.  
PHEBE A. BLAIR.

UNITED STATES OF AMERICA,  
*Northern District of California,* }  
*County of Alameda,* } *ss.*

Montgomery Howe and Phebe A. Blair, being duly sworn, each for himself, deposes and says that he is a resident and freeholder in said district, and is worth the sum of five hundred dollars, exclusive of property exempt from execution, and over and above all debts and liabilities.

MONTGOMERY HOWE.  
PHEBE A. BLAIR.

Subscribed and sworn to before me this 29th day of April, 1892.

[SEAL.]

W. L. PRATHER,  
*Notary Public.*

Form of bond and sufficiency of sureties approved.

(Signed) McKENNA,  
*Judge.*

(Endorsed:) Filed April 30, 1892. L. S. B. Sawyer, Clerk.

69 *Bond on Suspension of Injunction.*

In the United States Circuit Court, in and for the Northern District of California.

PACIFIC CABLE RAILWAY COMPANY, Complainant, }  
*vs.* } No. 10,987.  
CONSOLIDATED PIEDMONT CABLE COMPANY, }  
Respondent. }

Know all men by these presents, that we, the undersigned,

are jointly and severally held and firmly bound unto the Pacific Cable Railway Company, the complainant above named, in the sum of one thousand dollars lawful money of the United States, for the payment of which well and truly to be made, we bind ourselves, our heirs and assigns, jointly and severally, firmly by these presents.

The condition of the above obligation is such that

Whereas, in the above entitled suit an interlocutory decree has been made and entered in favor of the complainant, containing an injunctive order restraining the respondent from the further use of the tension apparatus now in use upon its railway in the City of Oakland and its suburbs, in the County of Alameda, and

Whereas, the said Court has ordered that the said injunction be suspended until the determination of the appeal taken from said interlocutory decree, in the United States Circuit Court of Appeals for the Ninth Circuit, upon the respondent's giving to said complainant a bond securing to the complainant the payment by respondent of any judgment that may finally be obtained against the respondent in said suit; now

Therefore, if the said respondent, the Consolidated  
70 Piedmont Cable Company, shall pay or cause to be paid to said complainant any judgment that may in said suit be finally obtained against the said respondent, then this obligation shall be void, otherwise of full force and effect.

Witness our hands and seals this 29th day of April, 1892.

MONTGOMERY HOWE, [SEAL.]

PHEBE A. BLAIR. [SEAL.]

In presence of  
W. L. PRATHER.

STATE OF CALIFORNIA, {  
County of Alameda, } ss.

Montgomery Howe and Phebe A. Blair, being duly sworn, each for himself, says that he is a resident and freeholder within the Northern District of the State of California, and is worth the amount specified in the foregoing obligation and for which he becomes surety therein, over and above all his just debts and liabilities, and exclusive of property exempt from execution.

MONTGOMERY HOWE,  
PHEBE A. BLAIR.

Subscribed and sworn to before me this 29th day of April, 1892.

[SEAL.]

W. L. PRATHER.

*Notary Public.*







B," and "Complainant's Exhibit C," (models) and which said originals are, by order of Court transmitted herewith, and form a part hereof; and that the same together constitute the transcript of the record upon appeal to the United States Circuit Court of Appeals for the Ninth Circuit.

In testimony whereof, I have hereunto set my hand, and affixed the seal of said Circuit Court, this 23rd day of May, A. D. 1892.

[SEAL.]

L. S. B. SAWYER,  
*Clerk U. S. Circuit Court, Northern District of California.*

*Citation.*

UNITED STATES OF AMERICA, ss:

The President of the United States to Pacific Cable Railway Company, greeting:

You are hereby cited and admonished to be and appear at a United States Circuit Court of Appeals, for the Ninth Circuit, to be holden at the City of San Francisco, in the State of California, on the 1st day of June next, pursuant to an order allowing appeal entered in the Clerk's office of the Circuit Court of the United States, for the Northern District of California, from the interlocutory decree heretofore filed and entered on the 13th day of April, 1892, in that certain suit wherein Consolidated Piedmont Cable Company is respondent and appellant, and you are complainant and appellee, to show cause, if any there be, why the interlocutory decree rendered against the said respondent and appellant as in the said order allowing appeal mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable Joseph McKenna, United States Circuit Judge, for the Ninth Judicial Circuit this 3rd day of May, A. D. 1892.

J. MCKENNA,  
*U. S. Circuit Judge, Ninth Judicial Circuit.*

(Endorsed:) Service of the within citation and receipt of a copy thereof admitted this 3rd day of May, 1892. Wm. F. Booth, Counsel for Appellee, Complainant in the Court below. Filed May 3, 1892. L. S. B. Sawyer, Clerk U. S. Circuit Court, Northern District of California.

